Isolated Vertebral Body Relapse of Acute Lymphoblastic Leukemia

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Osseous involvement in acute leukemia is common in children and occurs in about two thirds of all cases, but it is rare in adults(1). Besides the long bones, destructive and productive changes may develop in the spinal column in leukemia(2). Vertebral involvement as a prime manifestation of leukemia has been described in 3 cases earlier by Nadkarni et.al.(3). We describe an unusual isolated vertebral body relapse in a child with acute lymphoblastic leukemia (ALL), who was in complete remission and off therapy for 3 months.

Case Report

An 8-year-male was diagnosed to have low risk ALL in February 1987, but after remission induction with 3 drugs (vincristine, prednisolone, L-asparaginase and intrathecal triple therapy) he was lost to follow up. He was detected to have relapse of ALL (L2 morphology) in the bone marrow in September 1987. He was treated for 3 years till September 1990 with intensive chemotherapy protocol CCSG-106-Regimen A(4) for relapsed ALL at our centre. In addition he received a prophylactic course of cranial radiotherapy (1800 rads). Three months after completion of chemotherapy he presented with backache and unstable gait of recent onset. On examination the spine movements were painful and restricted. Neurologically he had increased tone, brisk jerks and extensor planters in both lower limbs. Superficial and deep sensations below D12 level were impaired. Testes appeared normal in size clinically. The spinal X-ray revealed a collapse of D8 vertebral body (Fig. 1). CT findings in the dorso-lumbar spine performed with intrathecal injection of water soluble contrast medium showed destruction of D8-D9 intervertebral disc, body of D8 vertebra and D7-D8 intervertebral disc (Fig. 2). There was also a paraspinal soft tissue mass extending into the bony spinal canal in the extradural region at D7-D8 vertebral level compressing the spinal cord concentrically at that level. Due to the worsening paraplegia he was taken up for emergency decompression of the spinal cord by the orthopedist. A vertebrectomy of D8 vertebra was performed and the spinal cord decompression achieved. The scrapings from D8 granulation tissue showed dense infiltration by round cells consistent
marrow were negative for blasts. He received reinduction chemotherapy for relapsed ALL but the child died on the 7th day of sepsis.

**Discussion**

Extramedullary spread is a common feature in ALL. The most common sites of extramedullary spread are the CNS, testes, liver, kidneys and spleen. Isolated, localized relapse at unusual locations like ovary, lungs, breast, eye, kidneys and bone have been reported. Isolated vertebral body relapse has not been reported earlier.

Compressive myelopathy is an uncommon presenting feature of acute leukemia especially in children. Among patients with documented meningeal involvement only 5-10% develop detectable spinal cord disease. Peterson could find only ten cases of spinal cord involvement in acute leukemias in the first decade of life; most commonly in acute myeloid leukemias. The commonest pathology in these cases was an extradural leukemic infiltration. The commonest site of spinal involvement is at thoracic level, followed by lumbar and sacral level. Backache and leg pains precede paralysis in two third of the cases by about 3-4 weeks, as noted in our case. However, vertebral collapse or fractures are unusual, occurring in 1-3% of patients.

Appropriate treatment should include local measures for disease control and intensification of systemic chemotherapy, as for any unusual isolated extramedullary relapse. The slightly changing relapse pattern may reflect the selection of biologically more benign ALL cells in these patients after more intensive therapy. Alternatively, biphenotypic or biclonal acute leukemias may present with or relapse at extra-
medullary sites with overt clinical manifestations(14).

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REFERENCES